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FARMERS IN NORTHERN STATES GROW TIMBER AS MONEY CROP



THERE IS A GROWING interest among farmers in the better handling of the woodland and in making that part of the farm produce its proportionate share of income. With this increased interest, many questions arise concerning better practices in growing timber crops. Actual experiences will undoubtedly throw considerable light on these problems and may stimulate others to put their idle acres to work growing trees. With this in view a number of rather conservative examples of timber growing have been brought together here.

Some of these examples have been obtained directly from farmers, but most of them were contributed by extension foresters of the Northern States who have demonstrated better methods in the growing of crops of timber to thousands of woodland owners. Should further information be desired concerning any of the examples, it is suggested that the request be directed to the local county agricultural agent or to the State extension forester located at the State college of agriculture. Should assistance in local farm-woodland problems be desired, it is suggested that correspondence be directed to the same agencies, or to the State forestry department, or to the Forest Service, United States Department of Agriculture.

FARMERS IN NORTHERN STATES GROW TIMBER AS MONEY CROP

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VALUE OF PRACTICAL TIMBER-GROWING EXAMPLES

Examples of success in growing trees for the actual cash return are especially valuable when they come direct from experienced farmers who have spent many hours in the woods thinking, planning, and working. They offer helpful suggestions in planning a timber-growing program and inspire greater interest in the value, use, and protection of this farm resource.

In timber growing it must be remembered that, although profits may not be large in all cases, the increased return in wood products for farm use or a greater cash return from the sale of products will add a degree of stability to the farm balance sheet and perhaps transform a farm liability into an asset.

Farmers who have promoted far-sighted programs by growing wood crops are reaping rewards. Their farms are more attractive and valuable, and their families are enjoying pleasures and benefits which only trees can contribute to farm life.

Remarks of those who have engaged in the business of farm timber growing are interesting and suggestive. A Pennsylvania farmer after five years of woods farming said:

Farm your woods as you do a crop of corn. Take out the weed trees and the unhealthy and crippled ones and give the best trees a chance to develop and ripen. Cut the good trees only when they are ripe.

An Ohio farmer said that he used the woods to fall back on when times became hard, and commented further:

Money from the sale of timber has helped to pay for the farm, take care of taxes, and assist in giving the children a good education, and in addition has furnished lumber, posts, and fuel for the farm.

¹Special acknowledgment is made of the assistance of the following extension foresters who have each contributed several examples from their respective States: I. T. Bode, of Iowa; Forrest W. Dean, of Ohio; J. A. Cope, of New York; and F. T. Murphey, of Pennsylvania. The assistance of Forest Service officers, and particularly the suggestions made by W. R. Mattoon, extension forester, also have contributed much to the publication.

Many other such statements could be given, pointing out the compensations to be received from growing trees as a money crop.

MAKE FARM WOODS PRODUCTIVE

Most farms in the Northern States have small woodlands located on hillsides, along streams, or on the rougher and poorer areas. On some farms these areas are kept in a productive condition; on others, wood production has been reduced to practically nothing, because of neglect. Every dollar of loss through holding idle woodlands is a direct drain on the farmer's yearly income and a factor which retards better living standards. It is good farm business to see that these loafing acres are turned into money-makers.

Timber can be raised as a crop like any other farm crop, the only difference being that a longer period of years is required for the timber crop to reach maturity. With trees of many different ages and sizes in the farm woods, however, the owner need not experience much delay in reaping the advantages of a timber crop. Many farmers have woodlands containing good stands of young trees which, if given protection and cut rightly, can be made to produce successive harvests of wood products.

The chief aim in growing timber is to make a profit. Farmers who have given attention to their woods in many cases have expressed surprise at the returns. Even if the farmer sells no timber, a good woodland will often pay by furnishing firewood, fence posts, poles, and material for repair and construction of farm buildings.

TIMBER CROPS REQUIRE BUSINESS METHODS

The rewards from the farm woods do not just happen but are the result of foresight, planning, and work. Profitable timber growing requires the business methods needed in the successful production of other farm crops. It will be noted in the examples given that the owners in cutting their timber took the more mature trees and the inferior ones, leaving the smaller thrifty trees and young growth. This method protects the owner's investment, and other crops of timber can be expected. Farm woods handled according to the best practices should yield a fair return on the investment and also provide wages for labor. These factors are brought out in a practical manner in the story entitled "Farm Woods Show Substantial Profits Over a 17-Year Period." As is true in this case, it is always advisable to keep records of time, costs, and returns in farm-timber operations. If a cash return for the timber can be shown after deducting interest, labor costs, and other carrying charges, timber growing is placed in a much stronger position as a farm business, and the investment is fully justified. Good farm management calls for making all farm areas, including the woodlands, profitable farm units.

PLANNING NEEDED FOR SUCCESSFUL TIMBER CROPS

Better planning is needed to put farm woodlands on a more productive basis and on an equality with other cropping areas. This means better planned growing and cutting operations and closer contact with local markets in merchandising timber products of better quality and workmanship. The farmer should know how much

standing timber he has, his own needs about the farm, and how to cut out the ripe and the inferior trees without injuring the younger ones. Also he should know the value of the timber and the available markets, and then provide time in his farm program to harvest his timber with his own labor and teams. If this program is developed according to a plan that will provide paying crops at fairly regular intervals, it can be said that wood is being produced as a money crop.

A Connecticut farmer named the principal elements of a timber-growing program when he said:

There are only three things required of any man to preserve his wood and timber for his own use and for the next generation. They are simply common sense, a sharp ax, and a thought for the future.



FIGURE 1.—Only the ripe trees are cut, according to the Wilcox plan, and the woods are protected from fire and grazing

FARMER DRAWS ON TIMBER BANK

That the farm woods are as good as a savings-bank account is clearly seen in the case of the farm of C. N. Wilcox, North Fairfield, Huron County, Ohio. Since 1910, when Mr. Wilcox took possession of the farm, the woodland comprising about 20 acres has come in handy "as to fall back upon,"—his own words—when times became hard on the farm. Money received from the sale of timber has helped to pay for the farm, to pay taxes, to give his children a good education, and in addition, to furnish lumber, posts, and fuel for the farm. (Fig. 1.)

When Mr. Wilcox, just starting out as a young farmer, took possession of the farm 20 years ago, he was advised to sell off all the timber. To-day he is more than glad that he did not. During the last 10 years these farm woods have given him nearly \$1,000 in

returns from saw logs. He still has an excellent stand of young timber, growing rapidly into a new crop of salable timber of high quality. Recently he sold several hundred dollars' worth of sugar maple, beech, tulip poplar, white elm, white ash, red oak, and black walnut.

Mr. Wilcox has never pastured his woods, and does not intend to, since grazing destroys the valuable young growth, which later can be converted into ready cash.

Hundreds of fine straight saplings of tulip poplar, ash, red oak, and sugar maple are coming into the openings from which the matured trees were removed a few years ago. This young growth is one of the most encouraging evidences seen anywhere that it pays to protect the farm woods.

AN INDIANA FARM-WOODLAND SUCCESS

For \$570 John Fensel, of Montpelier, Ind., bought 20 acres of hardwood forest in 1900, just after all the timber down to 3 inches in diameter had been cut for spokes. Since that time the woodland has supplied the timber for the following buildings: A double corn-crib 20 by 24 feet, a sheep barn 20 by 30 feet, a horse barn 20 by 36 feet, a garage 10 by 14 feet, and a cellar house 12 by 14 feet. Not less than 150 posts and 40 cords of wood have been taken from the forest, either to be used on the farm or to be sold. In addition, the ash was sold for handles in 1918 for \$400, and the elm was sold for barrels in 1924 for \$300. For the standing timber Mr. Fensel has been offered \$3,000.

Mr. Fensel has "farmed" his woods, choosing the mature and undesirable trees for cutting, and has protected it from fire. He permitted grazing for one year only. The prolific crop of young growth in his woodland forms a striking contrast to the complete absence of tree seedlings on an adjoining woodland area which has been heavily pastured.

THINNING PROVED OF GREAT VALUE ON A PENNSYLVANIA FARM

One day during the fall of 1927, W. C. Follmer and his son Charles, of Benton, Pa., walked out into their woodland and proceeded to look over 2 acres of timber. Every tree was scrutinized closely and a bark blaze put on all trees which were to be cut.

The particular piece of land chosen for the start of the thinning work possesses a real history. It was first logged immediately following the Civil War, at which time the wonderful virgin growth was cut to help stock the great sawmills of the State. At that time Pennsylvania was second only to Michigan among the lumber-producing States. The piece was logged again just before the beginning of the twentieth century and again in 1912.

Three timber crops had therefore come from the woodland when the Follmers decided that what it needed next was thinning. This involved removal of inferior old trees that had stood through the earlier harvests, as well as the cutting of the poor stuff of smaller growth.

Having made their decision, they turned the job over to two cutters, cautioning them to take out only trees that were marked, unless others were injured by the fall of adjacent trees.

Before the winter was over the originally selected area was increased to 4 acres. After the job was done the thinned parts looked so well that a neighbor said: "Thinning the woods is eating your cake and having it, too."

Now the short, bushy-crowned, crooked, injured, slow-growing trees of poor kinds are gone; the tall, well-crowned, straight, sound, fast-growing trees of the more valuable species are left, and growth conditions have been improved.

Sprags, which are used to brake the wheels of small coal cars when they run too fast on the down grades of mines, were made from most of the timber cut. Nearly 10,000 of these tapered pieces, 22 inches long and $2\frac{1}{4}$ to $3\frac{1}{2}$ inches at middiameter, were manufactured. (Fig. 2.) The value of these was \$170.70. Then, there were logs worth \$60; lumber, worth \$45; material for crates, worth \$24; and



FIGURE 2.—Mr. Follmer inspecting sprags in the storage shed

fuel wood, worth \$24; altogether \$323.70 worth of products harvested and prepared for market at a cost of \$239.10. This left the Follmers a net profit of \$84.60. Since 4 acres were thinned, the net profit amounted to \$21.15 an acre. But more than that, the timber stand left is in better condition in every way.

AN IOWA FARM WOOD LOT PAYS ITS WAY

"A woodland will easily pay for the land it occupies," says S. A. Walker, of Boone County, Iowa. "I have lived on this farm for 17 years and haven't bought 3 tons of coal altogether. We have had plenty of heat, too." Besides the fuel wood which Mr. Walker has used himself, he has furnished his son's winter supply for the last four or five years, and has sawed out some 16,000 board feet of construction lumber.

"When you figure that this wood takes the place of at least a \$40 annual coal bill, you can easily see its value," says Mr. Walker.

There are about $2\frac{1}{2}$ acres in Mr. Walker's woods. He has taken from this tract the equivalent of 22 winters' supply of fuel, which

he estimates had a total value of \$1,100. There are still left enough trees to be taken out in thinnings to supply fuel wood for three or four winters, in addition to the better trees being held for further growth. The remaining fuel wood, worth \$150 on the basis Mr. Walker stated, makes a total fuel value of \$1,250 for the period he has owned the woods. No figures are available for yields obtained previous to this time.

But fuel wood is not the only product which has come from the farm woods. Mr. Walker has sawed construction lumber from some of the best trees at various times. He said:

The first time we sawed something over 7,000 board feet of lumber. This was sawed from about 20 trees of 18 to 30 inches diameter, at a total cost of \$48, or about \$7 per thousand. Another time we sawed about 3,000 board feet, which cost \$12 for the sawing. The fellow who did the sawing wanted to buy half the lumber, and when I offered it to him for \$10 he snapped it up in a hurry. I have realized since that I didn't get out of that lumber anything near what it was worth.

Last spring we sawed another 6,000 feet from 25 to 30 trees. This cost us \$10 a thousand for the sawing, the highest we have had to pay. This lumber has been good construction lumber and has surely been cheaper than buying other lumber.

The lumber which Mr. Walker has sawed is worth \$24 to \$30 per thousand at least. The value of the lumber, together with the estimate Mr. Walker has made of the value of fuel wood and of the material still in the woodland, give a return of some \$1,700 or more during the 17-year period that Mr. Walker has owned the woodland. Even if this return alone is distributed over 40 years, the probable age of the woods, and the costs of lumber sawing deducted, there is left a return of approximately \$15.62 per acre per year.

These figures take no account of the value that the farm woodland has had as a protection to the farm buildings and lots.

The remainder of the trees are now nearly mature, and Mr. Walker is making plans to renew his woods systematically.

FARM WOODS SHOW SUBSTANTIAL PROFIT OVER A 17-YEAR PERIOD

The farm woodland owned by D. E. Laucks, of Herkimer County, N. Y., is typical, as far as composition goes, of thousands of acres of farm woods in central New York, consisting as it does of a mixed stand of beech, yellow birch, and hard maple, with some white ash, basswood, elm, and ironwood. The noteworthy thing about this woods is that it has been given careful attention during the last 17 years and that records have been kept for this period on the material removed.

Thirty-one years ago this 11-acre block of woods was cut over by a portable-mill operator who, following the usual practice, cut everything that would make a 2 by 4. A few scattered beech trees, too limby and knotty to be worth felling, were left; otherwise the area was cut clear. In 1912 Mr. Laucks bought the 11 acres of cut-over land for \$9 an acre, a total investment of about \$100.

In the 13 years that had elapsed since the original cutting, a vigorous stand of sprout growth had sprung up; in fact, it was this young growth that was of particular interest in the investment. As soon as

title to the woods passed into Mr. Laucks's hands, he began careful cuttings in the tract to improve growing conditions and to obtain annually the fuel wood required for home use. (Fig. 3.)

For the last 17 years Mr. Laucks has taken out each year from this 11-acre block, 12 standard cords in short-length fuel wood, or a little more than 1 cord per acre per year. His annual cutting during this 17-year period has removed most of the older defective beech and a quantity of the poorly shaped inferior second growth.

A sample area in this woods measured in 1929 showed a mixed hardwood stand made up largely of fine ash, basswood, and hard maple, running around 25 standard cords to the acre. No figures are available on the volume of the stand at the time it was purchased 17 years ago, but it is fair to assume that the volume at that time was probably about 15 standard cords per acre, including the large beech trees.



FIGURE 3.—Typical view of a profitable fuel-wood cutting carried on by Mr. Laucks and a number of other New York farmers

On this basis Mr. Laucks's woodland has yielded in fuel wood more than a standard cord of wood per acre per year, and at the same time his forest capital in growing trees has been built up from 15 to 25 cords per acre. It should also be pointed out that this careful cutting has improved the quality as well as the quantity of his forest capital.

The financial aspect of Mr. Laucks's woods work is equally worthy of note. On the basis of actual work done and the sale value of fuel wood in that community, the owner figures that the woodland has yielded \$70 in fuel wood per year for 17 years, or a grand total of \$1,190.

It should be remembered that this is a net figure; liberal wages for cutting, hauling, and buzzing this wood have already been deducted. If Mr. Laucks had put this \$100 in a savings bank paying 4 per cent compound interest it would have amounted to \$194.79 in the 17 years.

His total expense on account of this woodland is thus:

Original cost plus interest.....	\$194. 79
Annual taxes for 17 years with interest.....	161. 62
Total.....	356. 41
Fuel wood produced, net value.....	1, 190. 00
Costs.....	356. 41
Balance in favor of Mr. Laucks.....	833. 59

This profit is on what has been cut. In addition Mr. Laucks has a woodland with a present yield of 25 cords per acre. This is figuring on the basis of fuel wood only. Within the next 20 years some of the 8-inch white ash and the 10-inch basswood will be ready to cut, and will bring a higher return than it would if cut for fuel.

While it is obvious that these substantial returns came about partly because the original owner probably sold his "brush lot" at a reasonable figure, the fact remains that carefully planned cutting will make any well-stocked woodland an income-producing unit of the farm.

DAIRY FARMER ANSWERS TIMBER QUESTION

Is second-growth timber of any use, and is there any money in it? That is the question asked by many farmers. R. C. Damon, of Ashby, Mass., has a satisfactory answer. With about 200 acres of land and a good tract of it in thick second growth of medium size this question gave Mr. Damon considerable concern until he got in touch with the extension workers of the Massachusetts Agricultural College.

During the fall of 1927, the extension forester from the college selected the trees on a quarter of an acre of Mr. Damon's woods for a thinning demonstration. Only about half the trees were marked for cutting, yet they yielded $8\frac{1}{4}$ cords. Figure 4 shows the improved condition of Mr. Damon's woods.

Cutting, sawing, splitting, and delivering these $8\frac{1}{4}$ cords cost \$68.87. They were delivered to the customers for \$12.50 a cord, bringing in a return of \$103.12—a net profit of \$34.25, or \$4.15 per cord.

Mr. Damon believes that with careful thinning and protection his woodlands will produce yearly a cord of wood on every acre and will help to increase his yearly income. In commenting on better care of woodlands, Mr. Damon said:

I'm satisfied that the growth of my woods has greatly improved by thinning and that it has paid me to do it.

CHANGES CUTTING TACTICS—FINDS WOODS FARMING PAYS

J. D. Upton, a farmer of Warren County, Pa., has found a solution for profitable winter employment right on his farm. He is farming his woods.

Mr. Upton has made a total of \$2,500 in the last five years from woods which cost him \$300 twenty-five years ago. At the time he bought it, the lumbermen had just got through cutting everything of value from it, and considered themselves lucky to get rid of it at any price. For the last five winters Mr. Upton has made a habit of taking his "daily dozen" out in the timber with a saw and ax in his hands.

He has taken about \$500 each year, besides pay for his labor, from an area that would have been called brush a few years ago.

Mr. Upton is not stripping his woods in order to get this return. He is putting it in shape for future production of income. Instead of taking the tall, straight, thrifty trees of small diameters, he is saving them for future use when they will be larger and of greater commercial value. The crooked, weak, and poorly formed trees get the ax, in order that the better ones may have the proper space for growing. Several of the poorer trees are shown in Figure 5. From this inferior part of the woods he is salvaging the wood suitable for market demands.

There are 225 acres in this farm, 50 in cleared and cultivated ground and 175 acres in woods. His woodland comprises an area well above the average for the State of Pennsylvania, but it is grow-



FIGURE 4.—Thinning greatly improved Mr. Damon's woods and yielded a profit

ing on land too steep and poor to have a potential value for agricultural crops. He is making more on his 50 acres of bottom land, by farming it intensively, than he would on the entire 225, were it cleared. Instead of extending his cleared area he is tending toward the contraction of it, by planting the marginal agricultural land to forest trees. Said Mr. Upton:

I couldn't stand the pressure of the high timber prices following the war, so I began cutting in my own woods. For awhile the old habit of cutting held me, and I took the best and straightest trees and passed up the poorer ones. Sitting on a stump one day, I began counting rings of growth. I knew a tree left its mark each year by a ring on the stump. I found out that I was cutting just those trees that were producing the greatest layer of wood. I had been felling white ash, basswood, black cherry, hard maple, red oak, and hemlock, and passing up the beech, yellow birch, and other trees which grew much slower. Right then and there I changed my tactics, for I wanted to keep my woods in good shape for future returns. I am now cutting beech and birch and the crooked, forked, and defective trees of other species.

Mr. Upton does not claim all the credit for his present way of cutting. Having procured several bulletins on forestry, he dug out a working knowledge of timber management. He also got in touch with all the educational agencies in forestry that he could and got one or two men to give him pointers, on the ground. "Most all the \$2,500 worth of timber that I have cut so far came from the weed trees of my woods," Mr. Upton says. He has still about 50 acres to go over. His plans are to remove the timber, not all in one year, but in the form of yearly cuts. For one winter's job he planned to cut 25,000 board feet, plus the cordwood which will result from the tops. After he has improved the remainder of his woods, he will go back and cut the trees of all species as they become ripe. He will have to increase his yearly cut to at least 50,000 board feet, in order to keep up with the added growth which will result from his present system of cutting.



FIGURE 5.—The natural condition of the Upton timberland before any improvement cutting was done

Two years ago Mr. Upton bought a sawmill so that he could better manufacture the timber he was cutting and also custom-saw timber for his neighbors. His time is now almost all taken up between the close of crop season in October and the beginning of field work in spring. He keeps his hired man and teams busy all year round. The mill eventually will have to run yearlong in order to work up the growth of timber from his own and his neighbor's woodlands.

"In the summer I am busy raising wheat, hay, potatoes, and bees; in winter I am busy raising wood," he says. "Work in the woods in cold weather is not only profitable to me, but it is the most enjoyable work of the year."

He sells his wood in the form of lumber, railroad ties, mine props, grape stakes, and chemical and fuel wood. There is very little waste material left in the woods. In fact, if you walked through his woods

after he had made an improvement cutting, you would have to look close for even stumps—he cuts them so low. (Fig. 6)

Mr. Upton concludes from his experience that it is not a difficult matter for a farmer to make his woods “loosen up” and take a place in the yearly farm income. He says:

Farm your woods as you do a crop of corn. Take out the weed trees and the unhealthy and crippled ones, sell them to the wood market, and give the best trees a chance to develop and ripen. Cut the good trees only when they are ripe.

He strongly recommends to his neighbors the practice of “woods farming.”

FARMER DEVELOPS PAYING TIMBER PLAN

W. H. Thomas, a farmer living near Rock, Mass., has always lived in the fields and forests and, according to his own statement, has worked in timber ever since he was able to walk. Early in life Mr. Thomas took counsel with three men who had prospered in handling

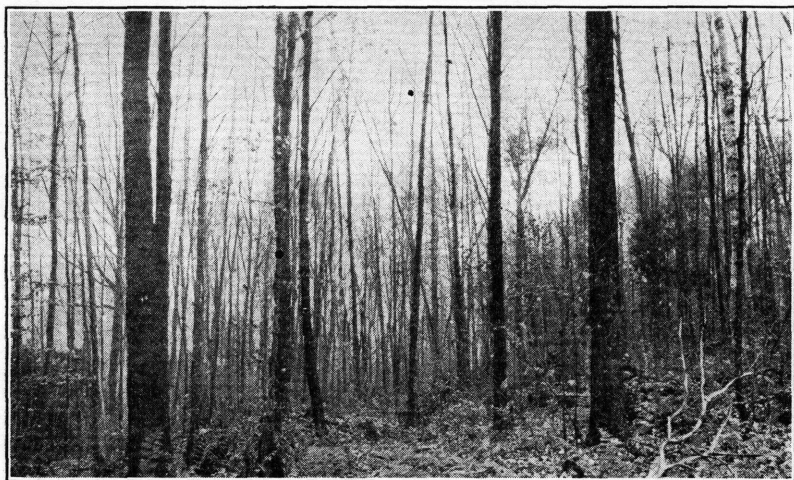


FIGURE 6.—All the crooked, diseased, and poor timber trees have been taken out. A fine group of trees is left for the next harvest

farms and timber, and from these men he got his first suggestions about the value of timber. This counsel gripped his thinking and later stirred him into action. After several years of observation and experience he worked out some ideas of his own regarding management of pine timberlands for producing a cash income at frequent intervals. (Fig. 7.) He has been cutting and growing pine timber on his 200 acres of woodland for a number of years.

In one year recently, Mr. Thomas cut more than 100 cords of logs and marketed them at a near-by box factory, where he received \$12.50 per cord. Mr. Thomas, who is now 75 years old, was unable to do any of the actual work himself but had his cutters take him to the woods, where he directed their operations. He has kept an account of all his expenditures and receipts and says that it cost him \$5 a cord for cutting and delivering, which left him a return of \$7.50



FIGURE 7.—Timber on the Thomas farm being worked according to a definite plan of taking out groups of ripe trees. The trees left will reseed the openings

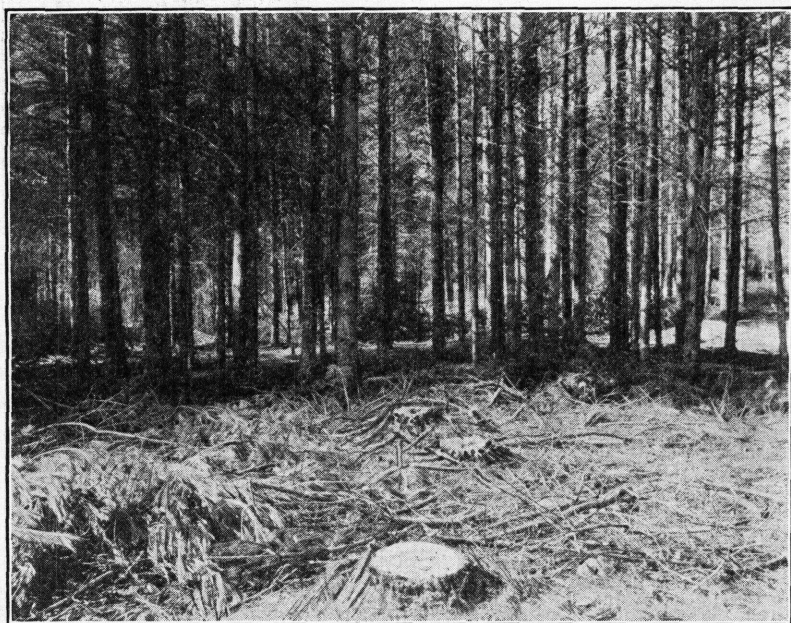


FIGURE 8.—New cutting in the Thomas woods. Most of the trees in the background will be left to grow. Note the low stumps in the foreground

per cord. He believes that a large area of farm woodland provides a splendid opportunity for a farmer to increase his yearly income. He said:

If a farmer has 100 acres of woods, he can make it pay by cutting a strip of it every year. (Fig. 8.) Every man that has a farm should have at least a 10-acre woodland in order to supply himself with winter wood. A farmer can not hoe and dig potatoes when the snow is on, but he must keep warm, and with a 10-acre woods, if he does some cutting every year, he can have a perpetual supply of fuel.

THE FARM WOODS PROVIDE TIMBER FOR A BARN

Late in the fall of 1916 the barn on the farm of J. C. Brubaker, in Lancaster County, Pa., caught fire. The fire caused a heavy loss to the farmer and his family, so heavy that they took considerable time to decide what to do.

While still undecided, Mr. Brubaker was visited by a local sawmill man who asked him for a contract for sawing the timber for a new barn. Mr. Brubaker was not aware that he had any suitable timber until the millman pointed out the tract which was in sight from the house.

It seemed too good to be true that the material for a barn had been growing right before his eyes and almost within arm's reach. A trip through the woods with the millman convinced Brubaker that the millman was right, as he pointed out the trees which would make the long heavy girders needed, the shorter ones to make the uprights, and still others which would furnish the rafters and other small-dimension pieces.

An agreement was drawn up by which the sawmill man was to set up his sawmill, saw out the needed bill of material, and haul it all to a point where the new barn was to be built. Everything which went into the barn except the siding and the roof covering was on the bill. Later all the timbers and the 2-inch stock necessary for a large tobacco shed, and the rafters needed for still another shed, were cut. Even many of the cross sticks essential in hanging tobacco to dry were made.

The woodland was just an average one. It had been cut over—not too closely—in 1896–97, 20 years before. From time to time during the 20 years some chestnut trees had been cut for fence posts and rails, but the amount taken out at any one time had been small. The trees, in the Brubaker woods were typical of those found throughout the southeastern part of Pennsylvania—tulip poplar, oaks, chestnut, hickories, soft maple, and scattered trees of other species. Even with some cutting the woods had been accumulating timber slowly year by year.

When the sawmill man was through cutting out the bill of material, he found he had cut 60,000 board feet of lumber. There are 8 acres of land in the tract, so that it furnished an average of over 7,000 board feet of lumber per acre. As there had been some cutting done earlier, the 60,000 board feet did not represent all which the land brought forth in the 20-year period. And there were a lot of tops and some crooked trees, which were good only for fuel wood.

Many persons have asked Mr. Brubaker how much money he saved by cutting his own timber. He said he had never attempted to figure it very closely, but he paid \$15 per thousand board feet to have the material put down at the barn site ready for use, and it is a little doubtful whether he could have bought what was needed at an average of less than \$45 per thousand, on board the car at the near-by freight station. In addition he would have had to haul it to the



FIGURE 9.—Mr. Brubaker and one of his tulip poplar trees. This tree grew very rapidly after being freed by the cutting of older trees around it

farm. He feels safe, anyway, in calculating a saving of \$2,000 on all the buildings put up. This means then that Mr. Brubaker would have had to lay out just so much more money if he had not owned the timber. Stated another way, he has "sold" the timber in his woodland to himself for the sum of \$2,000. In addition, the value of the wood used on the farm, or sold in the eight winters since the cutting was done, has amounted to approximately \$800.

When Mr. Brubaker was asked what he intended to do with the woodland now that its old timber had been cut off, he replied:

There's one thing sure, I won't clear it for farming. We've lots of good land on the rest of the farm. Some land is good for farm crops; some is good for timber. That piece of land grew a good crop while we weren't watching it. The ground is well covered now with young trees which have started to grow themselves. I'm going to let them stand and watch them grow. (Fig. 9.)

There were a few spots where young trees of good species failed to get started naturally. Some of these

have been planted with young white pines and larch. There were other spots where the sawmill man left trees which could not be used in any way for the barn. These have already been cut for wood. Mr. Brubaker will do more than watch his young trees grow. Properly managed, this small woodland will produce enough timber in the next 50 years to build two big barns like the one already built.

FARM WOODS YIELD THIRD CROP OF CONSTRUCTION TIMBER

For the third time a good lot of construction lumber has been sawed from the native timber growing on the White farm near Belle Plaine in Tama County, Iowa. The farm is now being run by G. A. White, who states that the sawing out of this native material "sure keeps the cost down."

The last sawing yielded some 14,000 feet of construction lumber besides the cordwood cut from the tops. The sawing was done at a charge of \$10 per thousand board feet for the sawing itself. Getting out the logs for the saw, according to Mr. White, cost about \$6 per thousand. The slabs and edgings from the saw were used for fuel to run the engine. The sawyer furnished the crew necessary to run the saw, and the owner took care of getting the logs out of the woods. The logs were cut and hauled out at odd times during the winter and altogether took about a month's time for two or three men.

FARMER TELLS STORY OF HIS WOODS

Fifteen years ago Alexander Bruce, of Berlin, Conn., purchased a farm of 100 acres, about 25 acres of which was in woodland containing a heavy stand of mixed hardwoods. The woodland had trees of all sizes, all shapes, dead and alive; some trees were down and others broken and leaning. There was an undergrowth of saplings, and over the entire tract a scattering of heavy oak and chestnut up to 3 feet in diameter. This large timber should have been cut, but it was impossible to do so without destroying much young growth in felling such large trees. The large timber consequently was left standing, and the crooked, deformed, and dead trees were cut out.

All the fuel wood necessary to heat Mr. Bruce's large house was supplied by the dead wood and small stunted trees during the first four years. Then 11 years ago 115 of the large red oaks were sold for piles, and the chestnut was sold for telephone poles. This timber was sold on the stump with restrictions as to felling the trees. Some young growth was destroyed but not a large quantity.

After the large timber was taken out, it took two years to clean up the waste wood. Some of this was used in the home heaters, and the remainder was made into stove, furnace, and fireplace wood and delivered to the city 6 miles away.

During the last six years, Mr. Bruce has sold two hundred 30-foot piles, cutting them where the stand was thickest. All fence posts, repair lumber, and wood for other farm needs have been taken from his woods during the last 15 years. Mr. Bruce said:

It may seem a long job, but it pays. This woodland has helped to keep me on the old farm. The material sold from my woods and the money saved in coal bills has amounted to a gross sum of \$7,000, not charging for labor by team or man. I can simply say that the time we spent on this woodland would have been time lost without it, as winter time is chore time. True, it is hard work, and if wages were charged for boss men and teams, the margin would be small. But I have another satisfaction in that I still have the woods covered with a stand of timber. Remember, I had the growth of the entire 25 acres chasing me for 15 years, and saplings 15 years ago, not larger than an ax handle, are quite promising trees now.

There are only three things required by any man to preserve his wood and timber for his own use and for the next generation and they are simply common sense, a sharp ax, and a thought for the future.

FARMING THE WOOD

John Fensel, an Indianan whose grandfather was a European forester, says that as a matter of ordinary horse sense he has treated his woodland as a productive part of his farm, and protected it from grazing and browsing animals.



FIGURE 10.—Mr. Ingram's farm woods. A simple cutting plan has been followed which has made the woods profitable over a long period of years

He started with 40 acres, mainly brush and willows, in 1881. There was 1 acre of this land in trees of good quality. He saved the acre stand, and bought, nine years later, 23 acres of cut-over land, in which some seed trees remained.

Since then he has "farmed the woods by common-sense methods." From his own timber he has built two barns, a corncrib, a cow stable, a woodhouse, a chicken house, a garage, and a summer kitchen. He sells 40 cords of stovewood each year for \$120. He cuts \$40 worth of fence posts each year. In 1914 he sold 10,000 feet of elm for \$300. In 1918 he sold 15 cords of ash for \$400. He sold \$150 worth of timber last year, and was offered \$3,000 for the standing

timber on the 23 acres for which he paid \$650, in 1900, when it was considered waste land. Mr. Fensel has said:

Farming a bit of woods is profitable. Using it for pasture is waste of land. There is little pasture in the woods, and soon there will be little woods in the pasture, for young trees of almost every kind are eaten by cattle.

TIMBER PAYS FARMER OVER LONG PERIOD

Glenn Ingram, a farmer living near Hastings, Mich., reports very satisfactory returns from 10 acres of woodland. During a period of 18 years, from 1910 to 1928, Mr. Ingram cut 53,000 feet of timber, part of which was sold and part used on the farm for building pur-

poses. The complete record of returns, uses made of timber, and years of cutting is as follows:

1910—cut 14,000 feet; built a farm home.

1913—cut 13,000 feet; sold, and cash put into improvements.

1918—cut 7,000 feet; used for shed, henhouse, and flooring.

1927—cut 17,000 feet; built a barn.

1928—cut 2,000 feet; used for repairs.

In addition to these returns, the woods have produced an average of 100 gallons of maple sirup a year, besides furnishing fence posts, whippletrees, and other products as needed on the farm.

Mr. Ingram has followed a simple cutting plan, taking out the larger ripe trees and leaving the younger ones to grow another crop of timber. (Fig. 10.) Special care was taken in cutting operations



FIGURE 11.—This New Hampshire farm woodland, thinned 20 years ago, shows a good growth

to protect all young promising poles and sapling trees. This system kept the woods in good timber-producing condition. The woods were pastured at first, but after studying the problem, the owner decided that his stock damaged the timber, so he has fenced it off.

"This 10-acre woodland is just as valuable as any other field on the farm," Mr. Ingram says. A recent offer of \$2,500 for the 10 acres was no inducement to Mr. Ingram to sell. He has decided that his woodland holds a very necessary place in his farm-management program.

FARMER HANDLES TIMBER AS A CROP

W. D. Pinkham, a dairy farmer of Coos County, N. H., handles his growing timber as a crop. In 1901 he bought a 30-acre tract of woods for \$50. Since that time he has been cutting spruce, balsam fir, hemlock, and birch from it almost yearly. (Fig. 11.) In the

winter of 1929, 2,668 board feet of spruce, fir, and hemlock, and 300 cedar posts were cut from the tract. The logs were sawed into boards at the local mill at a cost of \$6 per thousand feet. One thousand three hundred board feet were sold, and the remaining boards were to be used in the repair of buildings. Mr. Pinkham paid \$49 to get the logs cut and sawed at the mill and the posts made. He received \$42 for the lumber sold to neighboring farmers. The posts were sold for about \$60, and the lumber for his own use was worth \$45. The gross income from the woodland for that winter was \$147, and the total expenditures on the woods work was \$79. This left a net income of \$68. The woodland earned the farmer for the winter of 1929 a little over \$2 per acre.

In addition to lumber and posts, Mr. Pinkham gets out other products such as fuel wood, shingles, and timber for use on the farm. He said he had saved considerable money in lumber for farm building.

MORE DOLLARS THAN EXPECTED

L. J. Baxter, of Ida County, Iowa, stated:

We thinned the woods in accordance with the suggestions made during a woodland-management demonstration. The trees marked for taking out during the demonstration were cut by a neighbor who did the work on a share basis, getting half the firewood. We got the other half of the firewood, the posts, and what saw logs there were. When we sawed we furnished the saw outfit and one extra man, and the neighbor furnished four men.

Our share from the thinning was about 75 loads of wood (wagon boxes 10 by 3 by 3), five hundred and fifty 7-inch posts, one hundred 8-inch posts, and about 500 feet of fine lumber, mostly ash. The sawing of the lumber cost about \$10 and was done by a man who was operating a portable sawmill near our place.

Now I am figuring on treating the posts. I looked over the treating proposition while at Ames for the short course and concluded that it was not half as hard a job as it sounded to hear tell about it. The way it looks now I have bought my last post. I have a good supply of posts on hand from the thinning and more good ones coming on in the woodland.

With the saw outfit that I have rigged up for ripping lumber and posts, the material I will get out of the woods is going to mean more dollars than I had ever expected.

CASH INCOME OF \$5.83 AN ACRE YEARLY

Few owners of farm woods have any idea how much return they may reasonably expect from woodlands protected from grazing livestock and from which only the "ripe" trees are harvested at regular intervals. Charles Follin, a farmer and woodland owner of Bellville, Ohio, knows what woods will pay, as he has protected his and kept a record of the income. Mr. Follin's woodland tract of 25 acres in Richland County has paid him, during the last 24 years, a yearly cash income of \$5.83 per acre. From this must be deducted interest and taxes.

In 1903, the bulk of the large timber on the tract was sold from the land for \$3,000. (Fig. 12.) But there was left a large quantity of thrifty-growing tulip poplar, white ash, white and red oak, sugar maple, basswood, and chestnut. Since 1903 four crops of logs have been sold. Once in about every six years the owner has gone through the woods, selecting a ripe tree here and there for cutting.

He has received in the 24 years \$3,500 for the timber sold. Mr. Follin believes firmly that every farm woodland that is now grazed can be converted into a paying wood lot if fenced off and given protection from livestock and cut wisely.

HOME-GROWN LUMBER AND FUEL PAY INTEREST ON INVESTMENT

It is a comfortable feeling when the fall plowing is done to know you can go out in the farm woods and get 15 to 20 cords of fuel, year after year, without having to pay out any cash for it. Then there is the harvest of bigger stuff for lumber. That is like a tidy sum in the savings bank; it helps over the hard times.

This is what R. Lee Edmonds believes. His Clover Hill fruit farm lies above Seneca Lake in the Finger Lakes region of central



FIGURE 12.—The owner has taken out the ripe trees and left the young thrifty trees for another crop. These woods have been fenced off and given protection from livestock

New York. Only 16 of the 108 acres of the farm are in woods. Even this might have been cleared, but a small stream traversing the area made it unfit for tillage. The trees growing in the tract are those common to that section of the State—basswood, sugar maple, elm, beech, white oak, and yellow poplar. Mr. Edmonds's records cover the period from 1893 to 1926.

In 1893, when the first real timber cut was made, the stand was estimated to contain approximately 15,000 board feet to the acre. Mr. Edmonds went over the area carefully and marked the trees he believed should come out. A local lumberman did the cutting, paying him \$700 for 70,000 feet of basswood and elm.

The next cut was 4,000 feet of miscellaneous material, in 1900, at \$13 per thousand board feet. In 1910, 3,000 feet of poplar brought \$18 a thousand; and in 1913, just 20 years after the first cut, 36,000

feet of maple and beech (fig. 13) brought \$720 at \$20 per thousand. Because of the rising stumpage prices, he received just as much for one-half the amount of material he had sold 20 years earlier.

In addition to these returns Mr. Edmonds has supplied fuel wood for two families all these years, and has sold 70 cords at an average stumpage price of \$2 per cord.

Other woodlands may have shown equal yields in the past, but the significant thing about this woodland is the fact that there are still to-day enough veteran trees left to make the stand average close to 10,000 board feet to the acre; and, better still, there is a sturdy race of youngsters, some of them now 6 to 8 inches through, coming on to fill up the gaps.



FIGURE 13.—High-grade beech logs ready for the basket factory; cut from the R. Lee Edmonds woodlands

If Mr. Edmonds had permitted stock to run at large through the woodland, as is too commonly the practice in this section he would have nothing left but the old veterans, struggling along under abnormal growing conditions and endangered by the trampling of stock. And with their early decay, his son, in taking over the farm, would have had to look elsewhere for wood and lumber.

Summarizing the figures from the above account, we have:

113,000 feet lumber-----	\$1,526
70 standard cords of fuel wood sold-----	140
Fuel wood for 2 families for 33 years at \$20 per year (a very conservative figure)-----	660
Total-----	2,326

For 33 years the average annual gross return from the woodland has been \$70.50. The return on a per acre basis has been \$4.40 per year. The only annual cash charge to set against this return is taxes, which amount to 57 cents per acre, leaving a clear average annual profit to Mr. Edmonds of \$3.83 per acre.

The wood lot of this farm is assessed at \$25 per acre. It is held by the owner at approximately double that value. Therefore the annual return of \$3.83 per acre represents 7.6 per cent interest on the assumed value.

FINDS TIMBERLAND PROFITABLE—BUYS MORE

Twelve years ago H. H. Butterbaugh, of Carroll County, Ill., purchased 30 acres of virgin timber that had never been pastured or burned. According to his records, he has cut an average of 8,000 board feet of saw timber, 400 split posts, and 15 cords of wood each year since purchasing the 30 acres. The timber was sawed into rough lumber, framing material, and stock for wagon tongues, reaches, and other special uses. Some of the lumber has been used for the frames of new buildings and general construction purposes on the farm. A large part of the clear, straight-grained white oak, used for wagon tongues, reaches, and drag bars, was sold locally at \$125 a thousand board feet.

The average value of all the timber was \$50 per thousand board feet. The posts have been used on the farm or sold for 30 cents each; and the cordwood, valued at \$5 per cord, has been used for fuel. The tract has yielded him \$400 for lumber, \$120 for posts, and \$75 for cordwood, or a total of \$595 per year, a gross annual return of a little less than \$20 per acre with no deductions for labor, for the products sold and used on the farm.

Mr. Butterbaugh's immature timber, which has been liberated by this cutting, has responded remarkably well, and his white and red oaks are increasing an inch in diameter in from three to four years. He was so well pleased with this area that last year he purchased an adjoining 30 acres. His management methods have been sound but not complicated. He never lets cattle or other stock have access to his timber; he watches to see that fire does not get started; and, when cutting, he takes out only mature trees or those that are diseased or injured. His logs are made from the clear straight parts of the trees, his fence posts from shorter knotty or crooked parts, and his cordwood from the tops and inferior trees.

WOOD CROPS FIT IN WITH GOOD FARM MANAGEMENT

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